

**POLYMER SYNTHESIZER****ABSTRACT**

5           A polymer synthesizer is disclosed which has a base on which sits a synthesis case, a synthesis block, and a means of moving the synthesis block and supports for a reagent shelf. The synthesis case has a loading station, drain station, and a water tolerant reagent area and a water sensitive reagent dispensing area. The synthesis case has a cover, a first and a second side, a first and a second end, and a bottom side which  
10       contacts the base. The bottom side of the synthesis case has a top face in which there are tracks. A synthesis block moves back and forth in the synthesis case and has a top face and an opening in the top face for a synthesis plate with a plurality of wells. The synthesis block also has a collection area under the synthesis plate to drain spent reagents or optionally hold a sample plate. The polymer synthesizer also has a means of moving  
15       the synthesis block back and forth in the synthesis case, preferably a pulley, cable and motor. The polymer synthesizer also has a means of draining the liquid from the synthesis plate. A method of synthesizing oligonucleotides with the polymer synthesizer also is disclosed.